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LX. *An Account of the Frog-fish of Surinam, addressed to the Royal Society, by Mr. George Edwards, F. R. S.*

Read March 27, 1760. **I** Have now the honour to lay before this Royal Society an animal not to be found in the British Museum, nor in any other collection that I have seen in England, and which, perhaps, deserves attention, in regard to what is said of its strange metamorphoses, as much as any part of natural history whatever. It was brought from Surinam in South America, by the way of Barbadoes, to John Fothergill, M. D. of London, and is the animal, which Merian and Seba describe as changing from a frog into a fish.

In the appendix to Merian's Nat. History of the Insects of Surinam, where she treats of the transformation of fishes into frogs, and of frogs into fishes, after explaining, how the European frog is changed from a minute fish (or tadpole \*) into a perfect frog, she proceeds to describe the gradual transformation of a species of frogs found in great numbers in the river of Surinam, into perfect fishes, and gives five figures to illustrate her description; the subjects whereof, she says, were then in the collection of Albert Seba at Amsterdam, from whom she also had her

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\* I have grossly copied Mrs. Merian's five figures from Plate LXXI, the better to explain her descriptions, which figures are, herewith presented. Linnæus calls this animal *Paradoxa*, Last Edit. of his *Systema Naturæ*, p. 212.

figures and information, as appears since by the account published by Mr. Séba of his curious cabinet of natural history, in two pompous folio volumes, a copy of which, finely illuminated, is now in the British Museum.

*Mrs. Merian's Description is as follows.*

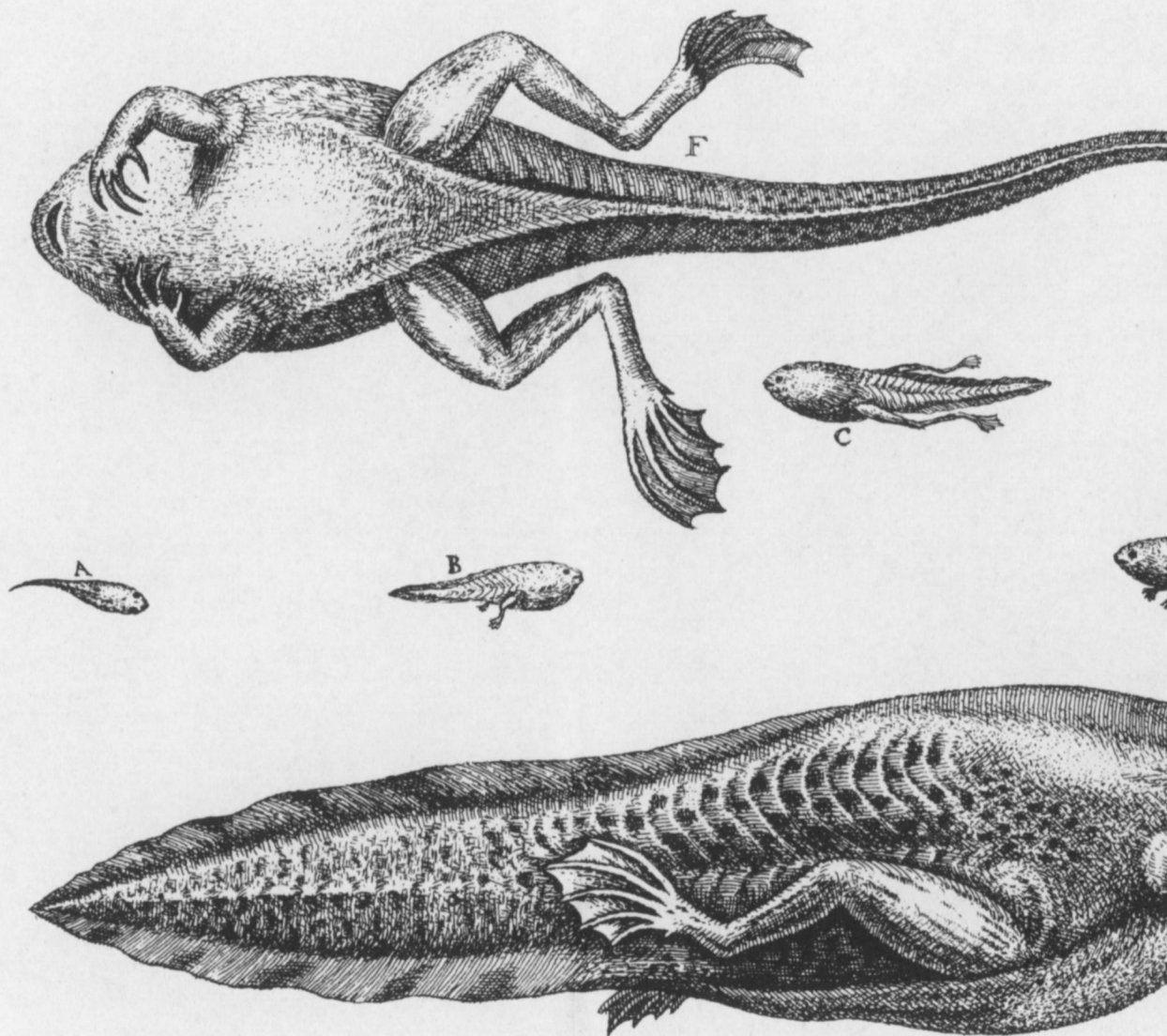
“ The first figure shews the perfect frog, brown, yellow, and green, in spots, but paler on the belly, the hinder feet webbed like those of a goose, the fore feet without webs: the second figure represents the first change the frog undergoes, by the growing out of a tail; after which it gradually acquires the shape of a fish, the two fore feet decreasing and perishing by degrees, as is shewn by figure 3. also the decrease of the hinder legs, as is shewn by figure 4. and, lastly, the frog is changed to a perfect fish, as at figure 5.

“ The Indians and Europeans of Surinam call these fishes Jakies; they are cartilaginous, of a substance like our *Mustela* †, and very delicate food. A bone (or cartilage) runs down the back, with small bones all over the body, which is divided into equal parts; they are adorned with tender beautiful scales, are first of a darkish colour, and afterwards grey.”

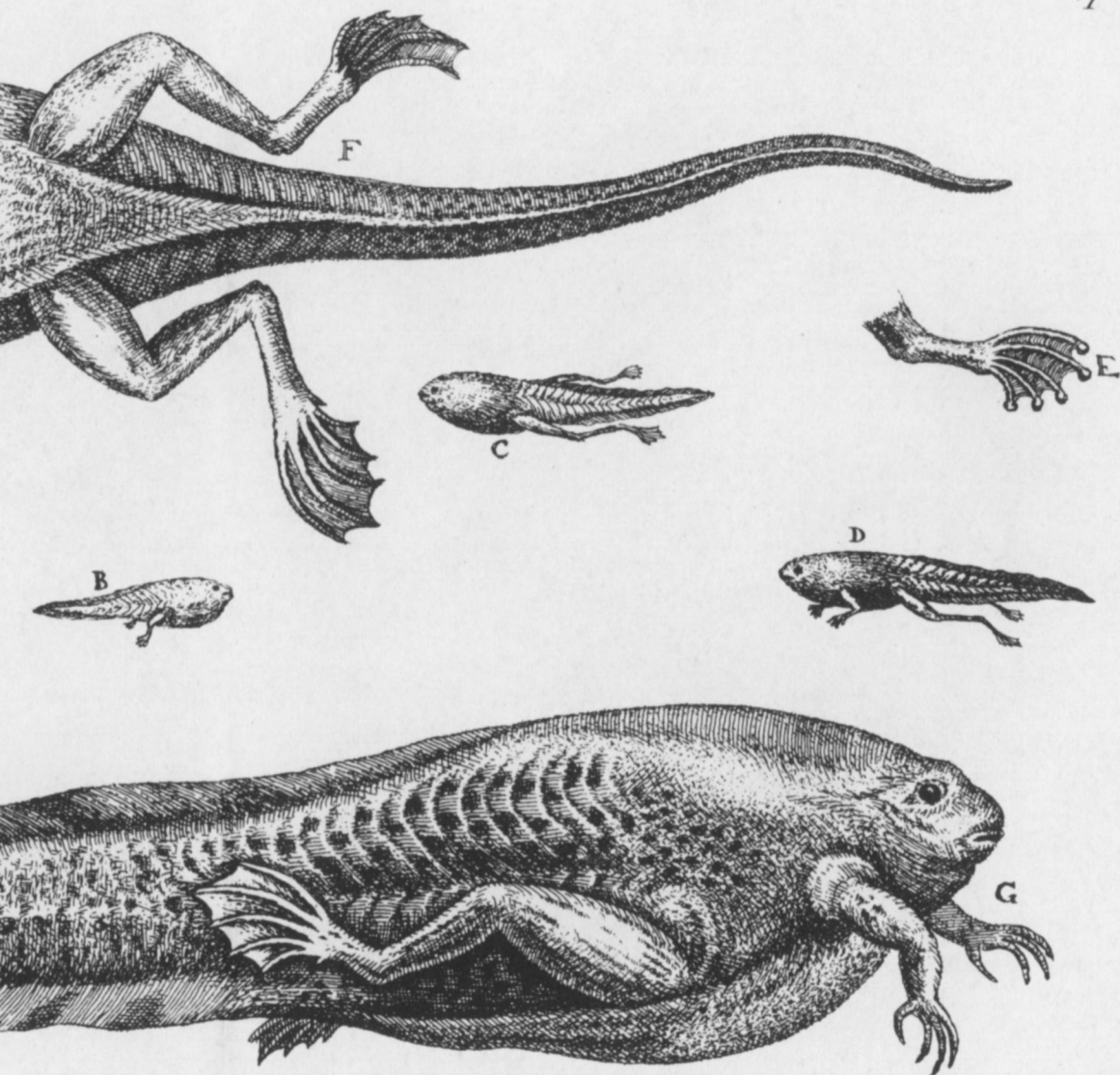
The frogs of Asia and Africa are described by this author, plate 72. to change gradually from fishes into frogs, as the European frogs do; but then she tells

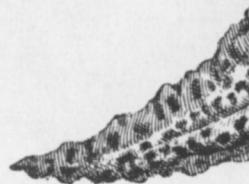
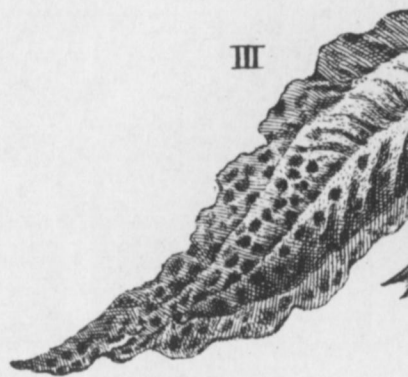
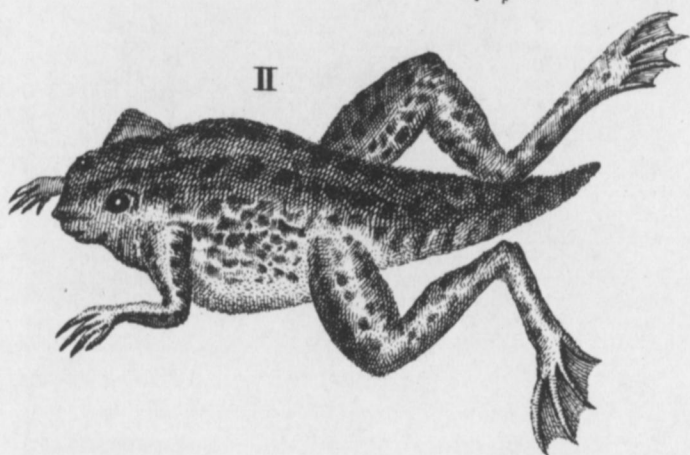
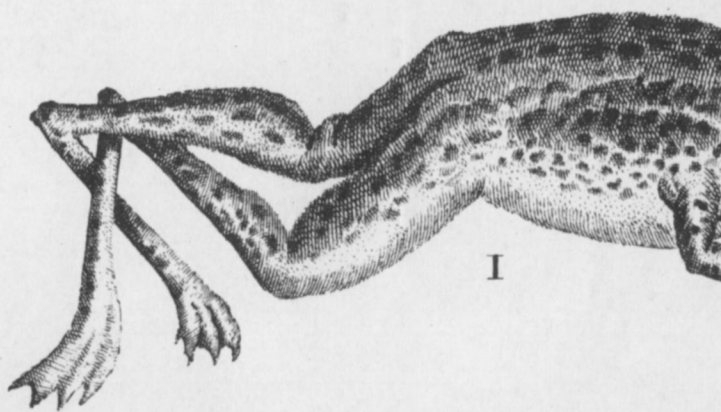
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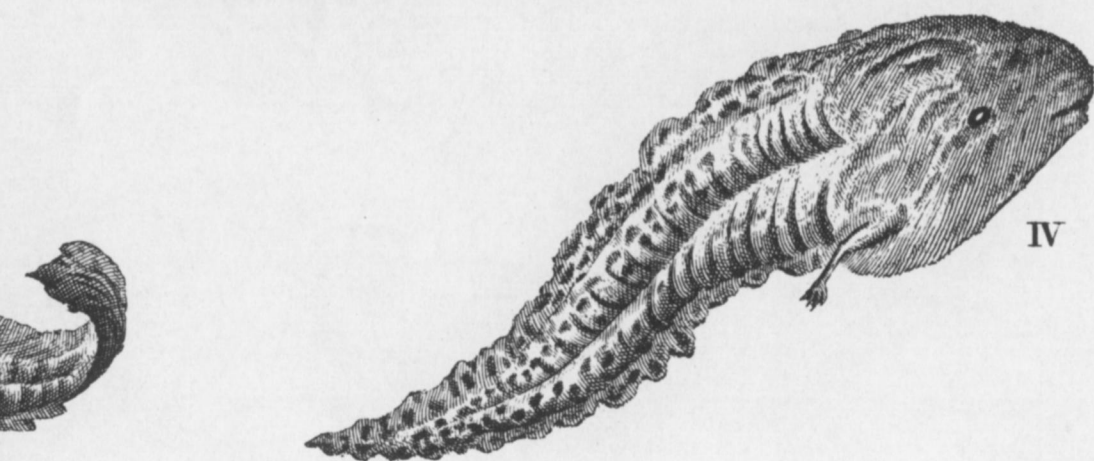
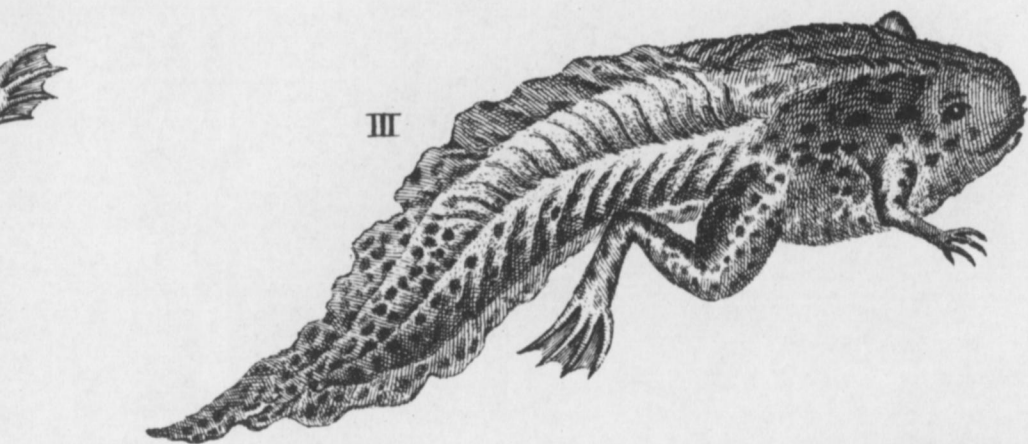
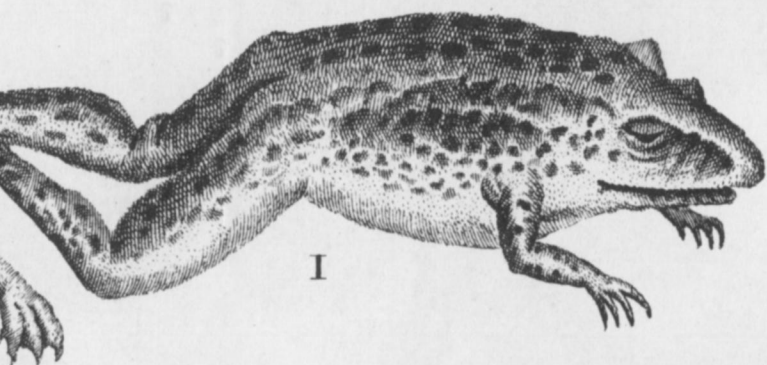
† A fish of the cartilaginous kind: See Willoughby de Piscibus, Tab. B. 5. and Edwards's Gleanings, Tab. 288.



*The Frogfish, of Surinam Drawn from nature of the size of Life. ~~~~~ George Edwards, Del.*







us that, after many years growth, they change again into fishes, tho' the manner of their change is unknown.

The natural subject before us, two views of which I have given in a print annexed, see Tab. XV. Letters F G. They are drawn and engraved immediately from nature, of the size of life, which, on comparison, I find to be more than double the size of what Merian has figured in her book, plate 71. which inclines me to think this before us to be specifically different from Merian's: her figure expresses the fin, which passes round the tail, scalloped, whereas in this before us the edge of the fin is perfectly even, without any indentures: the hinder feet in her figures have only four toes each, whereas this before us hath five, webbed together, besides a small rudiment of a toe, as may be seen in the natural subject, as well as in my print. The fore feet, both in Merian's and my figures, express four toes, unwebbed, tho' I find the four toes to stand, three of them in the form of fingers, and one opposite to them, which serves as a thumb, which is not expressed in Merian's figure. The general shape of it is expressed by the figures F. G, in my print. The skin is soft, without any thing of scaliness, and the fin round the tail is like thin wet leather, without any fibres to support it, as is common to most fishes. The toes in all the feet end in points, but are without nails or claws. On piercing the tail, or hinder part, with a needle, I found no bony resistance; but on piercing the thighs and head the bones strongly resisted. Its colour in the spirits appeared dark brown, with dusky spots, the under side lighter, and without spots.

There



There came in the same glass of spirits with the above-described frog-fish (as I have chose to call it), a parcel of small tadpoles, in their different changes from the spawn to near the perfect frog: see them expressed on the plate of their natural size at letter A B C D. Doubtless these produce a species of frogs different from the European, and perhaps are the same that Merian and Seba describe as changing into fishes. I think, however, that our assent to such an opinion may reasonably be suspended, till we are confirmed in it by farther observations of the real fact; for it seems strange, that a tadpole should first be changed into a frog, and that the self-same frog, by a reversed process of nature, should change again into a very large tadpole, as figured at G in the plate, and finally change into a fish, as in Merian, tab. 71. fig. 5. It seems very strange, that another tail should grow from the frog that hath lately lost one, and that he should gradually lose his legs, and become a perfect fish. Nature, in her ordinary course, is not accustomed to act in such a manner backwards and forwards, to seem to perfect a work, and then to reverse it by a process directly opposite.

The little tadpoles on the plate A B C D, are specifically different from the large one F G, as is manifest by the difference of their feet: see the hinder foot of one of the small ones magnified at E, which shews, that the ends of their toes are round and flat on their undersides, both in the hinder and fore feet: forwards they have four toes in each foot, unwebbed; the hinder feet have five toes, each webbed together.

As to the specimen before us, whether it is already in its perfect state, a species of frog having a tail, or a kind

kind of water-lizard, I shall not pretend to determine : but, considering its size, if it should be deemed a tadpole, as first produced from a spawn, and in its progress towards a frog, such a frog, when full-grown, if it bears the same proportion to its tadpole that the frogs in Europe do, it must be of an enormous size ; for our full-grown frogs exceed the tadpoles, and young fry of perfect frogs, at least fifty times in magnitude.

London, March 27, 1760.

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LXI. *An Account of a remarkable Operation on a broken Arm; by Mr. Charles White, Surgeon at Manchester, communicated by George Lloyd, Esq; F. R. S.*

Read March 27, 1760. **R**Obert Elliot, of Eyam, in Derbyshire, a very healthful boy of nine years old, had the misfortune, about midsummer in the year 1759, by a fall, to fracture the *Humerus*, near the middle of the bone. He was immediately taken to a bone-setter in that neighbourhood, who applied a bandage and splints to his arm, and treated him as properly, as, I suppose, he was capable of, for two or three months. His endeavours, however, were by no means productive of the desired effect, the bones not being at all united. A surgeon of eminence in Bakewell was afterwards called in ; but as he soon found he could be of no service to him, and, as the case was very curious, he advised the lad's friends